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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,724	10/22/2003	Scott H. Gillis	14072-036001 / W 617	7679

26161 7590 10/04/2006

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EXAMINER	
PAK, JOHN D	

ART UNIT	PAPER NUMBER
1616	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/690,724	GILLIS ET AL.	
	Examiner	Art Unit	
	JOHN PAK	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 3/04, 5/04, 7/04, 3/05, 6/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claims 2-42 have been canceled, claim 1 has been amended, and claim 43 has been added. The restriction requirement of 3/24/2006 is withdrawn in view of these changes. Claims 1 and 43 will presently be examined.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite or read on "a nanocrystalline material that comprises: a metal ... and an element selected from the group consisting of oxygen, nitrogen, carbon, boron, sulfur, a halogen, phosphorus, silicon, hydrogen and combinations thereof". It is unclear from this language whether the nanocrystalline material is a compound or complex of the metal and the element or a physical mixture of the metal and the element.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to

which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are directed to treating a subject who has inflammatory bowel disease (IBD) by contacting an area having the disease with a nanocrystalline material. The nanocrystalline material comprises a metal such as silver, gold, platinum or palladium, and at least about 1 atomic percent of an element selected from the group consisting of O, N, C, B, S, halogen, P, Si, H and combinations thereof. The following is a summary of claim scope:

	Scope of Applicant's Claims
Therapeutic agent	Nanocrystalline material, which comprises: Silver, Gold, Platinum or Palladium + at least 1 atomic % of O, N, C, B, S, halogen, P, Si, H and combinations thereof.
Disease or Condition	Inflammatory bowel disease, which includes Crohn's disease and Ulcerative Colitis.
Dosage	Undefined
Route of Administration	Open to virtually any route of administration since "contacting an area of the subject having the condition" does not specify how the contacting step is achieved and the area in question is the digestive tract.
Mode of Administration	Open to virtually any mode of administration since "contacting" is unspecified.

The state of the prior art or even the most current state of the art shows incomplete understanding of IBD, as evidenced herein.

Silbermintz et al. establish that etiology of ulcerative colitis and Crohn's disease remains unclear (p. 269, right column). Current therapeutics for IBD do not include any substance comprised of silver, gold, platinum or palladium (see pp. 272-74). Metronidazole and ciprofloxacin have been used successfully in the treatment of mild to moderate Crohn's colitis, but antibiotics have not demonstrated significant efficacy in the treatment of ulcerative colitis and therefore "plays little role in its treatment" (p. 273, third column). **HCAPLUS abstract 2005:332256** discloses that the mechanism of antibacterial therapy in treating IBD is unknown, although it may be related to eliminating a key pathogen, decreasing the number of bacterial secretory products or defective particles, a direct immunomodulating effect, or reducing secondary bacterial invasion. **HCAPLUS abstract 2006:751751** discloses that "available studies do not support the use of antibiotics in ulcerative colitis." Experimental and clinical observations suggest that intestinal microflora "plays a potential role in the pathogenesis" of IBD. Probiotic therapy may be effective in the treatment of mild to moderate ulcerative colitis. **HCAPLUS abstract 2001:926257** is an earlier disclosure to similar state of the art recognition.

Medline abstract 1998454009 discloses 36 cases of colitis caused by gold in rheumatoid arthritis patients. **Medline abstract 88076157** discloses ulcerative colitis

caused by oral administration of a gold salt preparation. Rectal biopsy revealed deep erosions, mucosal inflammation and crypt abscesses. **Medline abstract 83209466** discloses sodium aurothiomalate (gold salt) to cause ulcerative colitis.

Souza et al. disclose colonic lamina propria and epithelium from patients who suffer from ulcerative colitis show higher rates of apoptosis than controls (p. 280, last paragraph).

Thus, even though the level of one of ordinary skill in the art is quite high given the medical degree and training necessary to treat IBD, the level of unpredictability is also quite high. There is incomplete or conflicting understanding in the art regarding IBD etiology, pathogenesis and treatment. No substance based on silver, gold, platinum or palladium is recognized as effective treatment for IBD. In fact, even though applicant discloses gold to have antimicrobial and anti-inflammatory properties, the medical literature reports numerous cases of gold causing ulcerative colitis. Also, even though applicant discloses the inventive metal-based materials to have pro-apoptotic properties (specification p. 27, line 31), increased apoptosis may actually be detrimental in IBD affected cells. General use of a substance that may have antimicrobial properties to treat IBD is unpredictable as to its ultimate effect, because indiscriminate elimination of the intestinal microflora is contrary to the understanding that certain microflora are necessary and beneficial, as evidenced by existence of probiotic therapies for IBD treatment.

Applicant's original disclosure has been reviewed for directions and guidance in view of such state of the art. There is no working example relevant to treating IBD. There are four instances of IBD disclosure, twice in the specification and twice in the original claims. The following is exemplary of the unspecified and generalized disclosure found in applicant's originally filed specification (p. 3):

> In some embodiments, the condition is a mucosal condition and/or a serosal condition. The mucosal and/or serosal condition can be, for example, a bacterial condition, a biofilm condition, a microbial condition, an inflammatory condition, a fungal condition, a viral condition, an autoimmune condition, an idiopathic condition, a hyperproliferative condition, a noncancerous growth, and/or a cancerous condition. Exemplary mucosal and/or serosal conditions include pericarditis, Bowen's disease, stomatitis, prostatitis, sinusitis, allergic rhinitis, digestive disorders, peptic ulcers, esophageal ulcers, gastric ulcers, duodenal ulcer, espohagitis, gastritis, enteritis, enterogastric intestinal hemorrhage, toxic epidermal necrolysis syndrome, Stevens Johnson syndrome, fibrotic conditions, bronchitis, pneumonia, pharyngitis, common cold, ear infections, sore throat, sexually transmitted diseases, inflammatory bowel disease, colitis, hemorrhoids, thrush, dental conditions, oral conditions, conjunctivitis, periodontal conditions and combinations thereof.

No direction or guidance on compounds for specifically treating IBD, dose for IBD, route of administration for IBD and mode of administration for IBD can be found, so the skilled artisan would be faced with extraordinary amount of experimentation in the face of aforementioned state of the art, unpredictability, and harmful effect of one of the metals on IBD.

Therefore, in view of the totality of the factors, one skilled in the art could not use the invention as claimed in instant claims 1 and 43 without undue experimentation. The claims are therefore rejected as lacking in adequate enablement.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to JOHN PAK whose telephone number is **(571)272-0620.** The Examiner can normally be reached on Monday to Friday from 8 AM to 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's SPE, Johann Richter, can be reached on **(571)272-0646**.

The fax phone number for the organization where this application or proceeding is assigned is **(571)273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JOHN PAK
PRIMARY EXAMINER
GROUP 1600